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| Course Title | **Celestial Navigation**  |
| Course Code | MANS-114 |
| Course Type | Required |
| Level | 1st Cycle |
| Year / Semester | 1st Year, Spring Semester |
| Teacher’s Name |  |
| ECTS | 5 | Theory | Laboratory | Simulation | Tutorial |
| 4 | --- | --- | --- |
| Course Purpose and Objectives | The main objectives of the course are to:* present the basics on Geodesy
* display the earth’s shape and dimensions, focusing on the navigational use of these elements
* exhibit the celestial sphere
* describe our solar system
* display the motions of the navigational planets and stars
* demonstrate the utilization of the above data in acquiring a position line
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| Learning Outcomes | After completion of the course students are expected to be able to: * comprehend the basic Geodesy issues of navigational interest
* realize the correspondence between the coordinates on the celestial sphere and on earth
* explain the apparent motion of the celestial sphere
* acquire position lines on the surface of the earth using observations of celestial bodies
* compute the compass’s error using observations of celestial bodies
* calculate the difference between rhumb line and great circle sailing
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| Prerequisites | MANS-111 | Required | None |
| Course Content | * Rhumb line and great circle sailing
* Current as a parameter in course setting
* Universe
* Solar system
* The celestial sphere
* The equator coordinate system
* Hour Angle
* Daily motion and local coordinate system
* Planets, moon
* Nautical almanac
* Sextant
* Position fixing with celestial observations
* Compass error with celestial observations
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| Teaching Methodology | Lectures, in-class assignments, sound and video equipment, computer, projector |
| Bibliography | **Required Textbooks/Reading:**

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| --- | --- | --- | --- | --- |
| **Authors** | **Title** | **Publisher** | **Year** | **ISBN** |
| Nautical Institute | Admiralty Manual of Navigation | Nautical Institute | 2011 | 9781870077651 |

**Recommended Textbooks/Reading:**

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| --- | --- | --- | --- | --- |
| **Authors** | **Title** | **Publisher** | **Year** | **ISBN** |
| Bowditch, N. | The American Practical Navigator | Paradise Cay Publications | 2004 | 0939837544 |
| Toft, H. | GPS satellite navigation | Rauff and Soerenson | 1987 | 87-982698-3-6 |

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| Assessment | Homework, in-class assignments, projects, exams, final exam. |
| Language | English  |